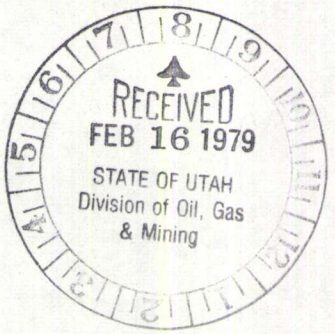
MINING APPLICATION
NO. ACT. 027/003
Date FEB. 14, 1979

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
1588 West North Temple
Salt Lake City, Utah 84116



MINING AND RECLAMATION PLAN
(Other forms may be used in lieu of MR 2, provided they contain the same information)

1. Name of Applicant or Company SAPPHIRE CORPORATION

2. Proposed type of operation Quarry

3. (a) Prior Land Use(s) winter grazing for sheep; summer grazing for cattle

   (b) Current Land Use(s) winter grazing for sheep; summer grazing for cattle

   (c) Possible or Prospective Future Land Use(s) winter grazing for sheep

4. What vegetation exists on the land proposed to be affected Artemisia (sage brush), Aegilops (goatgrass) Astragalus, Aegiots, Zigadenus, Castillega, Bromus, Sphaeralcea, Shad Scale, etc.

   (a) Types and Estimated Percent cover or density:

   0 to 30 per cent (average 20 per cent)

5. What is the pH range of soil before mining? 7.0 - 9.0 pH average 8.0
   Name of Person or Agency and method of determining pH J. A. Whelan, professor of Geology, University of Utah. Used pH paper.

6. Site elevation above sea level 6200 feet

7. In case of coal, oil shale, and bituminous sandstone:

   Principal seam(s) and thickness(es) NA

8. Estimated duration of mining operations 15 years

9. Has overburden, waste or rejected materials been classified as acid or alkali producing? ( ) Yes (xx) No
   Does the above material being moved have any other characteristics affecting revegetation? it is rock

10. Will any underground workings or aquifers be encountered? ( ) Yes (XX) No
    Describe

    Is there an active discharge of water from abandoned deep mines on or crossing the land affected? ( ) Yes (XXX) No If yes, describe the quality of water being discharged.

11. Describe specifically a detailed procedure for:
    (a) The mining sequence
    (b) The procedure for constructing and maintaining access roads, to include a typical cross-section and a profile of the proposed road grades.
    (c) The procedure for site preparation including removing trees and brush.
    (d) The method for removing and stockpiling topsoil or disturbed materials.
    (e) The method for the placement or containment of all disturbed materials, to include the method for handling of all acid or alkali-producing and toxic materials.
    (f) A procedure for final stabilization of disturbed materials.

GRADING AND REGRADING

Specifically describe:

(a) Typical cross-section of regrading.
(b) The method of spreading topsoil or upper horizon material on the regraded area and indicate the approximate thickness of the final surfacing material.
(c) What type of soil treatment will be utilized.
(d) The method of drainage control for the final regraded area.
(e) Maximum grading slope.

See attached mining and reclamation plan.

TESTING

1. Describe method for testing stability of reclamation fill material.

Standard road compation tests

Describe method for the testing of soil that is intended to support vegetation Test plots utilizing the soil will be planted.

2. Describe any soil treatment employed as an aid to revegetation

Soil treatment, if necessary, will be determined from test plots.

3. Describe surface preparation of areas intended to support vegetation:

Scarifying, followed by broadcasting and dragging.

REVEGETATION

1. Revegetation to be completed by:

(XXX) Operator
( ) Soil Conservation District
( ) Private Contractor
( ) Other (specify) _____

or

( ) Hydroseeding
( ) Aerial Seeding
(XXX) Conventional or Rangeland Drilli
(XXX) Broadcast and Drag
( ) Other _____

2. Will Mulch be used? ( ) Yes (xx) No

Type: _____ Rate/Acre _____ lbs.

3. Revegetation Plan and Schedule -

Species	Rate/ Acre	Planting Location	Facing N-S-E-W	Season to be replanted
FAIRWAY CRESTED WHEATGRASS	4 LBS/ACRE			
RUSSIAN WILDRYE	2 LBS/ACRE			15 Sep. - 1 Dec.
INTERMIDIATE WHEATGRASS	2 LBS/ACRE			
ALFALFA	2 LBS/ACRE			15 Sep.- 1 Dec.
YELLOW SWEET CLOVER	2 LBS/ACRE			

4. Will affected area be subject to livestock or wildlife grazing?

(xx) Yes ( ) No Will vegetation protection be needed? No

5. Will irrigation be used: ( ) Yes (XX) No Type _____

6. Describe maintenance procedures for revegetation if needed, until surety release is granted. Reseeding effectivness will be checked for three growing seasons.

STATE OF Utah

COUNTY OF Salt Lake

I, Aleda C. Jensen, having been duly sworn depose and attest that all of the representations contained in the foregoing application are true to the best of my knowledge; that I am authorized to complete and file this application on behalf of the Applicant and this application has been executed as required by law.

Signed: Aleda C. Jensen

Taken, subscribed and sworn to before me the undersigned authority in my said county, this 14 day of Feburary, 19 79.

Notary Public: Jo Ginn

My Commission Expires: Jan. 3, 1983

PLEASE NOTE:

Section 40-8-13(2) of the Mined Land Reclamation Act provides as follows:

> "Information relating to the location, size, or nature of the deposit and marked confidential by the operator, shall be protected as confidential information by the Board and the Division and not be a matter of public record in the absence of a written release from the operator, or until the mining operation has been terminated as provided in subsection (2) of section 40-8-21."

Is confidential information contained herein?

YES X Maps A.J. (Initial)

NO _____ (Initial)

Sections desired to be maintained as confidential information -

Maps _____ _____

_____ _____ _____

_____ _____ _____

-AMENDED-

MINING AND RECLAMATION PLAN

for

Spectrum Quarry,

Sapphire Corporation

Submitted to

Oil, Gas, and Mining Commission

State of Utah

Feb. 14, 1979

Prepared by ----

Clyde L. Cheney -- Mining

Consultant for Sapphire Corp.

Feb. 14, 1979

.NING PLAN FOR SPECTRUM QUARRY
SAPPHIRE CORPORATION

Introduction

The Spectrum Quarry of the Sapphire Corporation is located on unsurveyed public lands in what would be Sections 14, 22, 23, and 24, T. 17 S., R. 13 W. (SLB&M). A descriptive location would be Antelope Mountain, House Mountains, Millard County, Utah.

The quarry produces decorative and building stone that is strong and durable. The bedding is extremely uniform making layout planning often unnecessary. With a reserve of 6,600,000 tons, the life of production and operation is anticipated at 15 years.

The operation is to be a bench quarry operation. Due to the nature of the product, excavation will be handled by a combination of mechanized equipment such as truck haulage, front-end loaders, and wedging-by-hand. The product will then be transported to U.S. Highways 6 & 50 by existing gravel county roads. Excavation below the valley floor is not anticipated.

In addition to the quarry a 3,960 ft. airstrip has been * constructed at the site. A 30 ft. trailer is also on the site and is used as an office and for overnite lodging. The camp area provides parking, a work area for vehicles, a shop and stone-cutting area.

Mining Sequence

The basic mining sequence will consist of (1) stripping, (2) quarrying, and (3) reclamation.

* (SEE AMENDED PAGE 6)

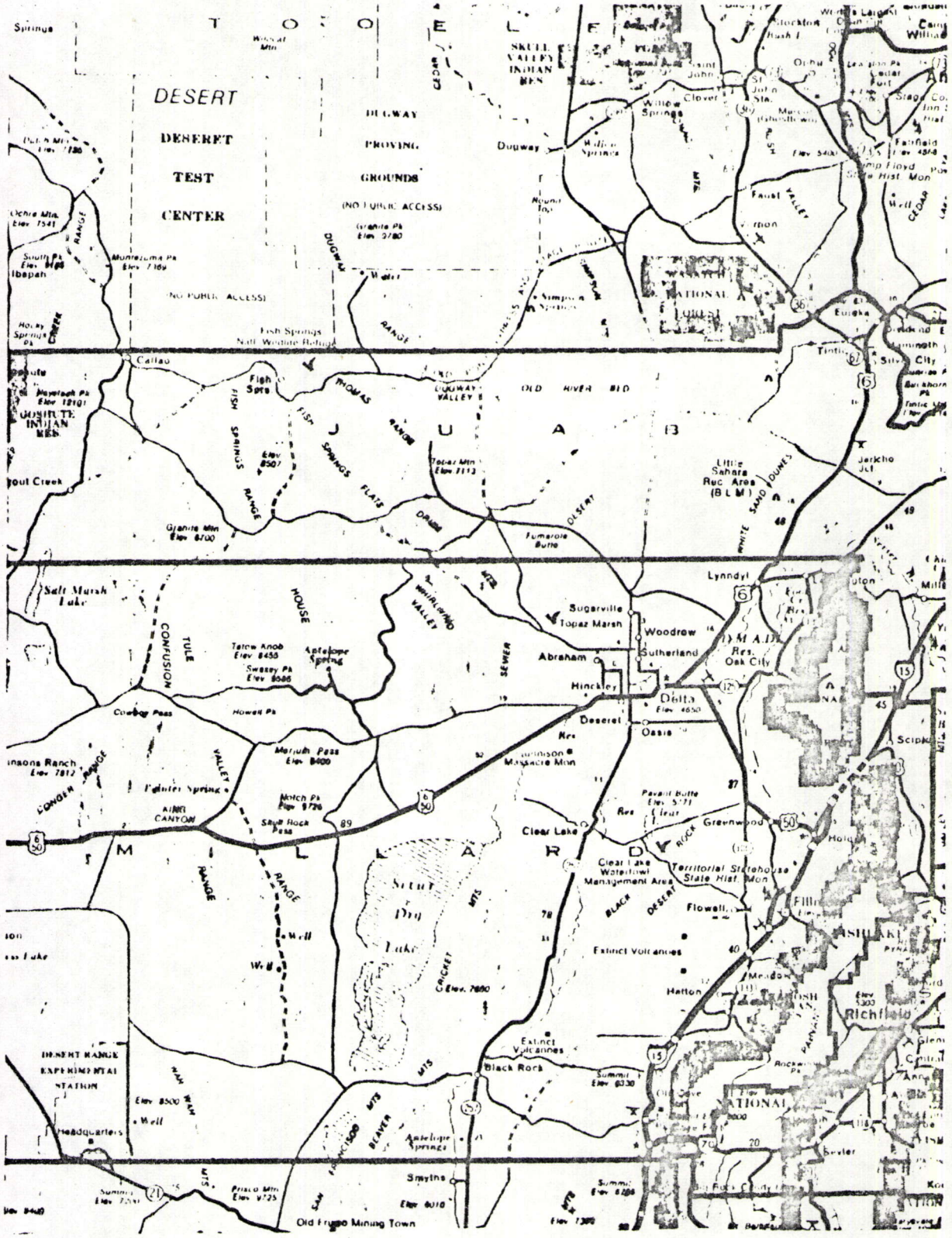


Figure 1- Location of Spectrum Mining Claims

from: Utah Highway Map 77/78
Utah State Dept. of Transportation

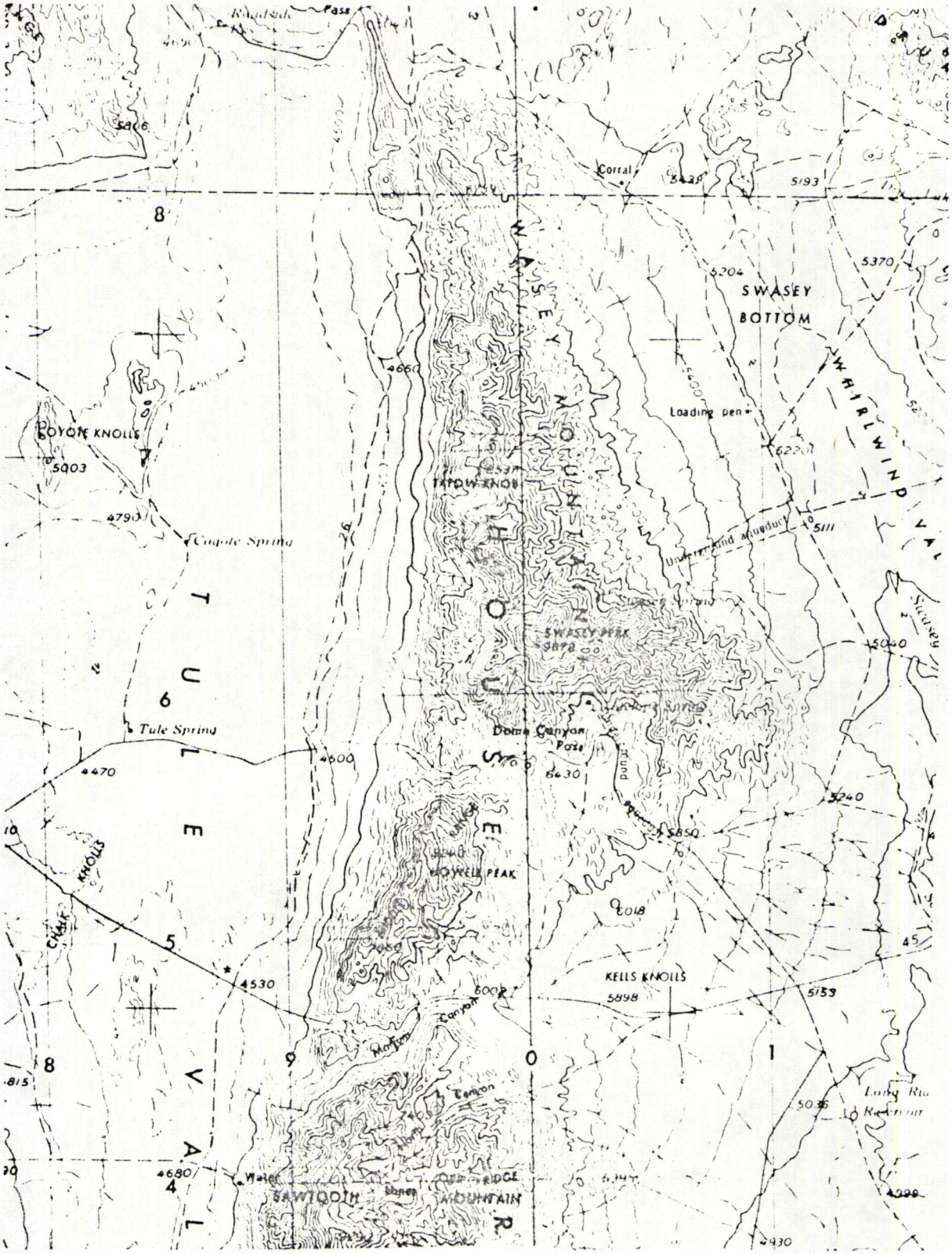


Figure 2- Location of Spectrum Mining Claims
from: AMS Map Service- Delta Sheet
scale 1:250,000

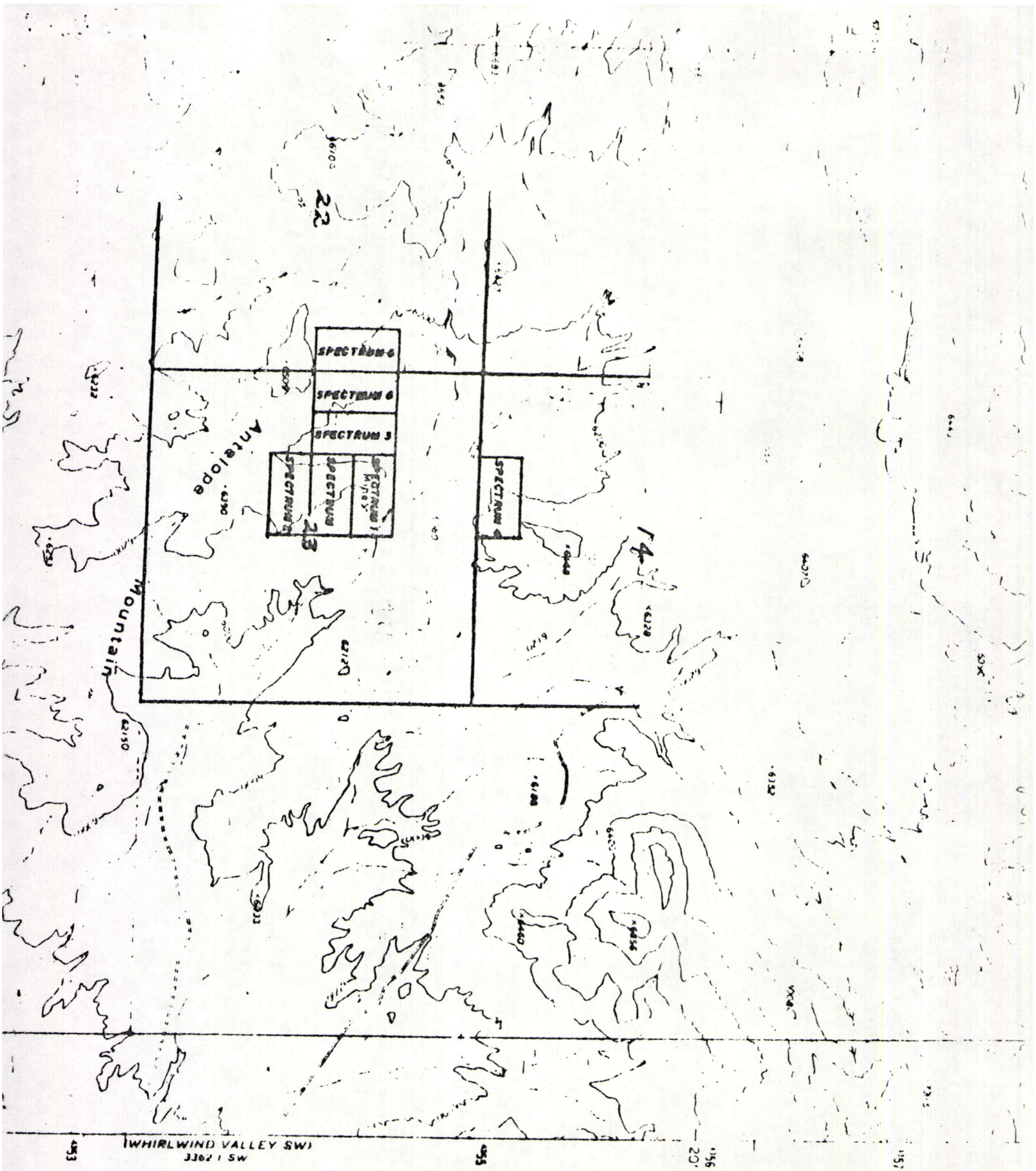


Figure 3 - Location of Spectrum Mining Claims
From: USGS 7½ minute quad
Marjum Pass Quadrangle
scale 1:24,000

Stripping of soil will be done by bulldozer or front end loader. Soil and alluvium will be stockpiled separately. Stripping of rock will be by bulldozer. Rock too hard to rip will be drilled with wagon drills and blasted. Slow powder and light charges will be used to prevent damage to the underlying quarry stone.

Quarrying will be done underhand on benches at about 20 foot intervals. Benches will have a large floor to highwall ratio as it is desired to remove the stone in as large slabs as possible. Bench floors will be washed. Slabs of rock will be removed by pulling "key" blocks and wedging, or sawing.

The benches may be wet at night to facilitate splitting out slabs. Slabs will be loaded onto trucks by hand or front end loaders. Random stone will be sorted and loaded into basket-type pallets by hand. Pallets will be handled by front end loader. Some sawing and trimming of stone will be done on benches and in the camp area.

Access Roads

A county road crosses the edge of the main quarry site and access roads will not be required.

No access road will be required for the northern quarry site as the county road borders the site.

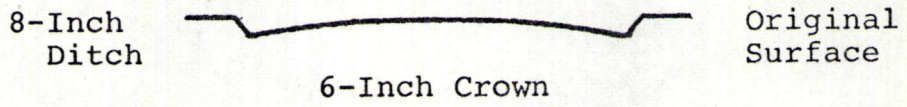
Approximately 110 feet of access road may be built to the southern quarry site, rising about 20 feet. This is not absolutely necessary, as the southern claims are contiguous with the main quarry. However, less surface disturbance will result by constructing the road. The road will be 20 feet wide with a crown of 6 inches and an 8 inch ditch, constructed

SAPPHIRE CORPORATION

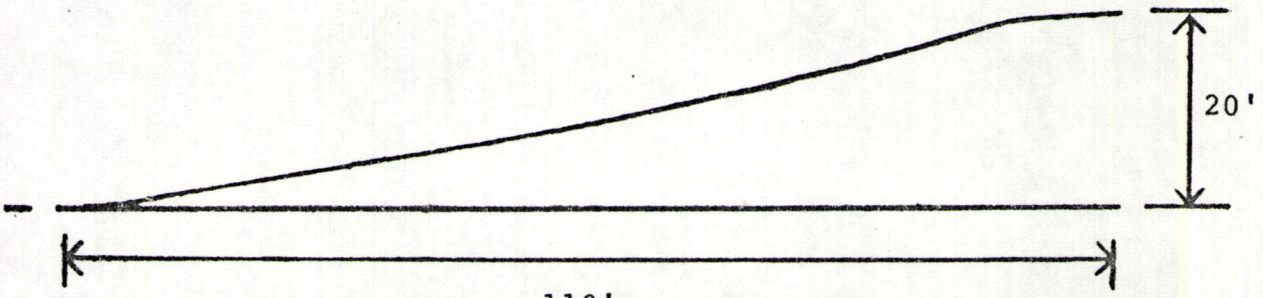
SPECTRUM QUARRY

FEB. 14, 1979

PROPOSED ROAD CROSS-SECTION
AND
PROFILE



TYPICAL ROAD CROSS-SECTION
1"=10'



Profile Access Road - South Quarry

1"=20'

with a blade. Drainage will be to the adjacent natural wash where crossed by the county road.

Reclamation

1. The purpose of reclamation will be to:
    1. Restore as much of the area as possible to a condition suitable for winter grazing of sheep.
    2. To maintain drainage in its pre-quarrying condition.
    3. To minimize the visual effects of mining.
2. Clean-up. All trash, scrap metal and wood, scrap equipment, unusable buildings, and extraneous debris

shall be salvaged, buried in a suitable landfill, or disposed of as directed by the Oil, Gas, and Mining Commission of the Division of Natural Resources, State of Utah and in accordance with the Division of Health, State of Utah.

3. Impoundments. All spoil piles, fills, pads and regraded areas will be self-draining and non-impounding.

4. Quarry reclamation. The upper benches of the quarry will be reclaimed by backfilling spoil against them to achieve a natural-appearing slope of 30^{o} or less. Stockpiled alluvial material and soil will be used to support revegetation as described below. If during the three-season check of revegetation, described below, significant erosion of the backfill becomes apparent, the fill will be terraced and drain channels or french drains installed, if necessary. If insufficient fill is available, the low benches will be cleaned to assure stability, and a waiver of backfilling requested from the Sate of Utah Oil, Gas, and Mining Commission. Waste/spoil material is essentially flaggy, clayey limestone.

Sulfides are very rare in this rock (one marcasite concretion has been found) and should produce neither acid nor alkali.

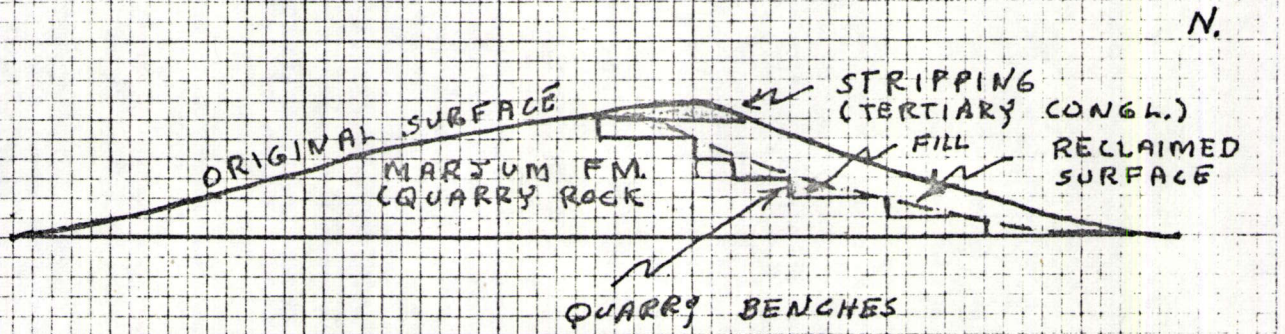
Rock material will be moved in with trucks and spread with a bulldozer. If adequate compaction is not obtained, a roller will be used.

Roads and pads will be reclaimed by scarafying to blend into the natural contours and be reseeded with suggested mixture below.

Species	Rate
Fairway crested wheatgrass	4 lbs/acre
Russian wildrye	2 lbs/acre
Intermediate wheatgrass	2 lbs/acre
Alfalfa	2 lbs/acre
Yellow sweetclover	2 lbs/acre

All debris and all structures not required during the reclaiming shall be removed from the site prior to reclaiming operations. Upon completion of reclaiming, remaining structures shall be removed unless approved by the Oil, Gas, and Mining Commission for continuing use.

Surficial materials that are suitable for growth medium upon revegetation will be removed with a front end loader and stockpiled. The first cut containing sage and other brush will be stockpiled separately. During final reclamation, this material will be buried. Care shall be taken to prevent water or wind erosion or excessive compaction of the surficial material to be used in revegetation. Upon completion of grading, this material will be redistributed on areas to be reseeded, in adequate thickness (at least six inches) to support plant growth. Reseeding will be as described for road reclamation, above. Goals of reseeding shall be a twenty percent soil coverage (seventy percent of the original 30 percent coverage). Revegetation will be checked for three growing seasons after reseeding. Test plots, established in consultation with the Oil, Gas, and Mining Commission, will be used to develop revegetation procedures. This plan may be modified on the basis of test plot results.



NOTE: FILL TO BE COMPACTED WASTE ROCK, TOPPED WITH 6-INCHES OF ALLUVIAL MATERIAL FOR REVEGETATION. IF INSUFFICIENT SPOIL IS AVAILABLE FOR FILL, SOME BENCHES WILL BE CUT BACK TO 30°.

RECLAIMATION PLAN
SAPPHIRE CORPORATION
SPECTRUM QUARRY
SCALE 1"=100'
VERTICAL & HORIZONTAL
PREPARED BY CLYDE CHENEY

AMENDED

The airstrip was constructed without permission and therefore, is not part of the claims. However, for continuing use of the airstrip facilities, compliance with regulations will be made.

Land disturbance of quarry operation occured prior to 1975. Our mining plan is to take off approximately 100 ft. x 200 ft. x 10 ft., removing the pebbley conglomerate overburden from the disturbed area, which is located at the top.

To ensure smooth product removal with less breakage and waste, the area will be posted of any danger or hazards that may exist.

SAPPHIRE CORPORATION

By Aleda C. Jensen
Aleda Jensen, Secretary